DOCUMENT RESUME

ED 024 647 SP 001 962

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The Minicourse: Rationale and Uses in the Inservice Education of Teachers.

Far West Lab. for Educational Research and Development, Berkeley, Calif.
Spons Agency- Office of Education (DHEW), Washington, D.C.
Pub Date Feb 68
Note- 28p.
EDRS Price MF-$0.25 HC-$1.50
Descriptors- *Course Descriptions, Discussion (Teaching Technique), Feedback, *Inservice Courses, *Inservice Teacher Education, Instructional Films, *Microteaching, Self Evaluation, Teacher Experience, Teaching Models, Teaching Procedures, *Teaching Skills, Video Tape Recordings

This collection of materials reports the research and development of a series of inservice training "minicourses," short courses (about 75 minutes per day for 15 days) designed to teach specific teacher behavior patterns with use of the minroteaching technique, self-evaluation of video tape feedback, instructional films, and filmed illustrations by model teachers. The main document reviews the instructional model on which the courses are constructed, defines and discusses the advantages of microteaching, and describes the scope and future plans for the minicourse program. It includes a 6-item bibliography and a comprehensive description and field evaluation report of Minicourse 1, "Effective Questioning in a Classroom Discussion." A general information sheet "In Answer to Your 'Minicourse' Inquiry- includes information on the availability of Minicourse 1 which includes instructional and model lessons (on 16mm films), all printed materials needed, and film processing fees. Accompanying leaflets include "Questions and Answers about the Minicourse Model," a list of 24 steps in the development program, a description of the main field test and operational field tests performed in the course development cycle, and a list of Minicourses 2-16 with brief descriptions of goals and content plus notes on the present stages of development or field testing. (SP 001 966 is a related document.) (JS)

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ED 024647

FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

THE MINICOURSE:

RATIONALE AND USES IN THE INSERVICE EDUCATION OF TEACHERS

by

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Hotel Claremont
Berkeley, California
February 8, 1968

The work reported herein was performed pursuant to a contract with the United States Department of Health, Education and Welfare, Office of Education.

SP001962

THE MINICOURSE:

RATIONALE AND USES IN THE INSERVICE EDUCATION OF TEACHERS[1, 2]

The Three Aspects of Teacher Education

The training of a teacher can be divided into three categories. These are:

(1) Curriculum Content; which includes mastery of the knowledge, concepts, and information that make up the content of the instructional program. This area consists primarily of the "subject matter" or curriculum that the teacher is expected to transmit to the pupil. The great mass of content in this aspect of teacher education is transmitted to the teacher in the form of language and abstractions. The teacher subsequently transmits a similar body of information to his or her pupils, again predominately in the form of abstract concepts.

(2) Professional Knowledge; which includes the substantial body of knowledge that teachers need as functioning members of the teaching profession. Information in such areas as: educational psychology, child and adolescent development, and educational evaluation is included in this category. Most of the information in this category is also presented to the teacher in the form of abstractions. The teacher must apply these abstractions to concrete educational situations, and this leap from abstract information to concrete applications is a difficult one for most teachers to make. As a result, teachers are frequently found incapable of applying knowledge that they have gained in this category. Teachers are often extremely critical of this aspect of their training because they can generally recognize that the information they need is not being given in a form that they can use.

(3) The third teacher education category may be called Classroom Skills and Behavior and includes the teaching skills, human interaction and behavior patterns that the teacher needs in order to function efficiently in a variety of teaching-learning situations. It is in this area that the greatest discrepancy usually occurs between the form in which the teacher receives the information, i.e., largely in terms of abstractions presented through lectures or printed materials and the form in which the teacher must actually use the information, i.e., through the development of patterns of classroom behavior. Some student teaching programs present this category of information in a form reasonably convertible to the classroom situation. However, the vast majority of student teaching programs are not focused towards the development of specific behavior patterns nor do they provide the trainee with effective feedback of the sort required for the efficient development of skills. In summary, it appears that teacher education programs, both preservice and inservice, are most effective in preparing the teacher in the specific subject matter he or she is to teach.

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1. The work reported herein was performed persuant to a contract with the United States Department of Health, Education, and Welfare, Office of Education.
2. Paper presented at the annual meeting of the American Educational Research Association, Feb. 7-10, 1968, Chicago, Illinois,

Such programs are generally much less effective in providing teachers with the knowledge and insight needed to understand the learner and the teaching-learning act. With regard to building the specific skills and behavior patterns the teacher needs to efficiently structure a variety of teaching-learning situations within the classroom, it is suggested that most current programs do virtually nothing.

The Minicourse Program

The Teacher Education Program of the Far West Laboratory for Educational Research and Development is directed towards this third category of teacher education. We are concerned with the shaping of specific classroom skills and behavior patterns required by the teacher for effective teaching. The instructional model upon which we are building our current series of inservice training courses is an adaptation of the microteaching approach developed at Stanford and employed in the Stanford Intern Program (Bush and Allen, 1964; Allen and Fortune, 1966). We have been working in close cooperation with the Stanford Research and Development Center in developing our current program. We call our inservice courses "minicourses" to differentiate them from other instructional models that employ the microteaching approach. Since many educators are not familiar with microteaching; let me describe it briefly. As developed at Stanford University and used in their teacher intern program, microteaching has the following basic characteristics:

1. First, a specific teaching skill is studied by the intern.

2. Then, the intern attempts to apply the skill in a short lesson, usually five to ten minutes, with four or five pupils.

3. This lesson is recorded on videotape and immediately after its completion, the intern watches a replay of the lesson.

4. During the replay a supervisor gives the intern feedback on his performance.

5. The intern then replans the lesson and reteaches it to another group of four or five pupils.

The minicourse model differs from the Stanford intern model in several ways which generally reflect the different situation found in a university preservice program as opposed to an inservice program that may be offered in any school district. One major difference is that the minicourse model provides a self-contained package of inservice training materials that can be used in any school where a videotape recording system is available. The second major difference is that while the Stanford Intern Program employs immediate feedback from carefully trained supervisors, the minicourse program attempts to provide feedback through a self-evaluation and peer interaction approach and relies heavily upon illustrations by model teachers rather than supervisory feedback to provide the trainee with an operational definition of the behavior patterns or skills to be learned. Some research evidence suggests that models can be as effective as supervisory feedback and, of course, permit the minicourse to be self-contained (Orme, 1966).

Our first minicourse deals with 12 specific skills that the teacher can use to improve her use of questions in a discussion lesson. I would like to describe the teachers' experiences during the first four days of the course in some detail since this will give you further insight into the minicourse model.

On the first day an Introduction film is shown. This film describes the microteaching approach and its advantages, and provides other information needed by the teacher taking the course. Since our minicourses use an instructional approach that is new to most teachers, we also give teachers a practice lesson to familiarize them with the microteaching technique. The teacher starts the practice lesson on the first day.

On the second day the teacher completes the practice lesson and views the first instructional film which describes three specific questioning techniques the teacher can use to increase the pupils' readiness to respond to discussion questions. Each technique presented is illustrated with scenes obtained from classroom discussion sessions. Our typical instructional film runs about 15 minutes.

The teacher then views the first model film. The model film shows another teacher conducting a similar lesson and the teacher's attention is focused on major points by narrator comments as these points are illustrated by the model teacher.

Then the teacher is asked to prepare a short lesson based on her current class work and designed to apply the skills she has seen on the instructional and model films.

On the third day, the first microteaching session is held. The teacher conducts the lesson she has planned with 5 to 8 of her own pupils. This presentation is recorded on videotape. The pupils then return to the regular classroom, and the teacher plays back the videotape in order to study her own behavior. During this first playback the teacher is instructed to study her overall performance and identify specific aspects of the lesson that could be improved. Since viewing oneself on videotape often brings about an emotional reaction, the teacher is not asked to focus closely upon specific skills during this viewing. The teacher then replays her own lesson for the second time, this time using a checklist in order to evaluate her performance on the specific behaviors covered on the instructional tape. The teacher is then instructed to replan her lesson and be prepared to reteach it during the next session.

On the fourth day the teacher reteaches the lesson with different pupils from her class and the lesson is again recorded on videotape. The teacher then watches the playback of the lesson, first for general effect and then to evaluate her own performance. After school on the fourth day the teacher along with another teacher taking the course, view the replays of the lesson they taught that day for the third time for the purpose of giving each other further feedback and suggestions for improving their performance. Although the teacher is encouraged

to view the third replay of her revised lesson with another teacher, she has the option of viewing this replay alone.

You will note that days 2, 3 and 4 make up a complete sequence of instruction, microteaching and reteaching.

The preliminary form of our first course was made up of three such sequences, while four sequences were included in the field test form. A fifth sequence, the practice lesson, has been included in the operational form of the course. The number of sequences to be included in a course is determined by the number of skills that the course teaches.

Advantages of Microteaching

When compared with conventional teacher education programs, we believe that the instructional model we are developing in our minicourses has some important advantages for inservice training. Among these are the following:

1. Our minicourses are designed to provide a complete inservice training package. This is especially important for small, rural schools where few resources are available that could be used to supplement the package.

2. Since the teacher is working with a short lesson and few students, she can try out new methods and ideas in a less difficult situation than that found in the regular classroom. This reduces the threat implicit in trying new approaches and thus encourages teachers to change and improve.

3. Microteaching gives the teacher a chance to learn teaching skills through direct experience. Our courses are designed to show the teacher what to do and provide a chance to do it rather than telling the teacher what to do. In the operational form of our first course, about 10% of the course involves telling the teacher, 20% involves showing the teacher, and in the remaining 70% the teacher is trying the skill and watching her own performance. We believe that many teacher education programs fail to develop classroom skills because the teacher is told about the skills, but does not practice them in a controlled situation. Learning to teach by listening to lectures or reading books can be as sterile and frustrating as trying to learn simpler skills by these approaches, such as golf, bowling, or making a speech.

4. The teacher gets immediate reinforcement from viewing models, revising and reteaching the lesson; and noting changes in pupil behavior.

5. The teacher gets immediate feedback from the videotape replays of her teaching. Thus, she can promptly evaluate her progress, eliminate bad habits and more firmly establish the new methods she is learning.

6. Microteaching focuses on specific skills rather than generalities.

Future Plans for the Minicourse Program

Scope of the Program

I mentioned that our first minicourse deals with the basic skills involved in using questions in a class discussion. We also plan to develop courses on other basic teaching skills such as reinforcement, classroom management and pupil-teacher interaction. However, we plan to deal not only with basic teaching skills which have been emphasized at Stanford, but with other skills urgently needed by teachers who are in service. Thus, in addition to basic skills, we will provide training in three other areas:

1. One set of minicourses will be concerned with skills needed to teach non-typical pupil groups. The course we are currently building in this area is directed to improving the kindergarten teacher's skill in helping culturally deprived children develop and use language.

2. Another group of minicourses will cover the teacher skills needed to work effectively in new educational settings. Our first course in this area is designed to help teachers develop skills needed to work effectively in an individualized instructional program such as the Pittsburgh IPI Program or the AIR Project PLAN. Other courses we are tentatively planning in this area would deal with skills required to teach in a team teaching situation or in a computer assisted instructional program. Many such innovations call for drastic changes in the teacher's role. If successful, our courses will help teachers adjust to role changes.

3. Finally, we plan to provide inservice training in the skills needed to teach new and different curricula. Many of the current curriculum innovations require skills and information that are new to most teachers in the schools. We are currently working on a National Science Foundation project that will evaluate one new science curriculum and identify the specific teacher preparation needed to effectively implement this curriculum. If our first effort in this area proves valuable in bringing about more effective use of a new curriculum, it will provide a teacher preparation model that can be applied to future curriculum development projects.

Next Steps

During 1968 we will develop and test six minicourses. In the process of this development we will hope to achieve 3 objectives. These are:

1. To improve the minicourse model so that it becomes increasingly effective as a tool for shaping teacher behavior.

2. To determine the range of instructional situations over which this model is effective.

3. To identify alternative models that can be used in instructional situations where the minicourse is not appropriate.

To achieve these objectives requires a careful and systematic research and development effort. We do not expect the schools to accept our products on faith. On the contrary, we do not release a course for operational use until we have solid evidence that it does the job for which it was designed. For example, developing Minicourse 1 included four major development stages.

1. In the first stage we searched the literature, defined our goals, developed an initial form of the course and conducted a field test of this preliminary course to determine where improvements were needed.

2. We then revised the course and conducted our main field test. The purpose of the main field test was to determine whether the course achieved its objective of changing teacher behavior in class discussion lessons.. For each of the 48 teachers in the main field test we obtained a 20 minute videotape of the teacher's performance before taking the course and another after taking the course. These tapes were then scored for the specific behaviors we wanted to change by graduate students not regularly employed at the Laboratory. Tapes were assigned at random for evaluation and observers do not know whether they were viewing a pre-tape or post-tape.

3. We have just completed a third revision of the course that incorporates changes and improvements that were suggested by the main field test. This revision will be tested under operational conditions in April 1968 to find out if any further changes are needed before the course becomes fully operational.

4. Our final revision will be made after the operational test and will be ready for use in early summer of this year.

Preliminary Results for Minicourse 1

Although analysis of our main field test data is not yet finished, the analysis of changes in teacher behavior have been completed and results are given in Table 1. ONe of the objectiv es of the course was to reduce the percentage of time during class discussion when the teacher was talking. Previous studies have shown that teachers talk as much as 70% of the time during class discussions, thereby severely restricting the amount of time available for pupil contributions (Floyd, 1960) (Adams, 1964). Analysis of the videotapes of the 48 teachers who took Minicourse 1 during the field test revealed that on the pre-course tapes the average teacher talked nearly 52% of the time, while on the post-tapes the average teacher talked 28% of the time. This indicates a major change in the teachers' behavior in conducting discussion lessons. Teacher talk was nearly halved on the lessons recorded after completing the course.

One of the behaviors taught in Minicourse 1 is redirection. Redirection is the technique of framing questions in such a way that the question can be directed to several pupils rather than a single pupil. The teacher asks the question and redirects it to a number of pupils each of whom contributes to a complete answer. Redirection has the advantage of increasing pupil participation and direct interaction among pupils in the discussion situation. For the 48 teachers in the field test, the mean number of redirections made by teachers in the twenty-minute pre-tape was 27.[3] On the post-tape these teachers used redirection an average of 41 times, an increase of about 40% in the use of this specific technique.

Let us now consider changes in the teachers' use of three negative behaviors which the course attempts to reduce or eliminate. These behaviors are repeating the question, repeating the pupil's answer and answering ones own questions. Analysis of pre-tapes indicated that the average teacher repeated his or her questions 14 times in the twenty-minute lesson. On the post-tapes this figure was reduced to 5 repetitions.

Repeating pupil answers is considered an undesirable technique because it increases the amount of discussion time taken up by the teacher and also conditions pupils to listen to the teacher rather than to each other since they can expect the pupil's answer to be repeated by the teacher. On the pre-tapes, the average teacher repeated pupil answers 31 times, while on the post-tapes, the average teacher repeated pupil answers only 4 times.

The disadvantage of the teacher answering his or her own questions are obvious. If carried to an extreme, this behavior results in the teacher giving a monologue rather than conducting a discussion lesson. In any case, it deprives pupils of the chance to participate in the discussion and increases the percentage of teacher talk. Pre-tapes showed that the average teacher answered his or her own questions 5 times in the twenty-minute lesson. The post-tape mean was less than 1.

Probing describes a set of techniques that the teacher can use after the pupil's initial response to a question in order to lead the pupil to a more adequate or complete response. Minicourse 1 attempts to increase the teacher's use of three such techniques. These are: Prompting in which the teacher gives the pupil clues or asks him leading questions. Further clarification in which the teacher attempts to get the pupil to clarify, elaborate or explain his initial response, and Refocusing in which the teacher attempts to get the pupil to relate his initial response to other topics that the class has studied.

On the first two of these behaviors, statistically significant differences were obtained but the magnitude of these changes is not very impressive. Teachers made little use of these techniques before taking the course and were

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[3] Means given in this paper are rounded to nearest whole number. Table I figures are correct to two decimal places.

not making effective use of them after the course. The trend of the results, however, suggests that a more extensive treatment of these skills in the course would probably bring about substantial changes in teacher behavior. As for refocusing, the behavior was virtually non-existent in either the pre or post tapes. In most discussion lessons opportunities to use refocusing are limited. The failure of the course to develop this skill may indicate that the minicourse model is not useful in shaping teacher behaviors that can only be practiced infrequently in a microteaching lesson.

The course also attempted to train teachers to pause for 5 seconds after asking a question and before calling on a pupil. Teachers did not significantly change the length of their pause as a result of the course.

Another objective of the course was to train teachers to ask questions that call for longer pupil responses and require pupils to use higher cognitive processes. A word count of pupil responses on the pre-tapes showed the average length to be 6 words. This was increased to 12 words on the post-tapes. The frequency of one-word pupil replies was also significantly reduced on the post-tapes. Floyd's study (1960) indicated that 42% of questions asked by his sample of teachers called for memory of specific facts and another 23% asked for information on specific facts. Our research on Minicourse 1 indicated that 63% of teacher questions on the pre-tapes called for specific facts and 37% called for higher cognitive processes. In the post tapes, fact questions were reduced to 48%, and higher cognitive questions increased to 52%.

The course also attempted to reduce the teacher's use of punitive reactions to incorrect pupil answers. Such teacher behavior tends to reduce pupil participation since the child is reluctant to respond unless he is sure his answer is correct. Virtually no instances of this teacher behavior occurred on either the pre or post-tapes, suggesting that we were trying to eliminate a behavior that rarely occurs (at least under video taping conditions).

Conclusions

From the data analyzed to date, we may conclude that the minicourse shows considerable promise an an instructional model to develop teaching skills and bring about changes in the teacher's classroom behavior. It seems reasonable to expect that over the coming year as this model is improved in subsequent minicourses, greater changes in teacher behavior will result. Since completing the field test, a 4 hour refresher course built around the same model has been developed for Minicourse 1. This course along with two alternative treatments was tried on subsamples of the 48 field test teachers in February. Finally, in order to estimate the permanence of behavior changes brought about by the minicourse, videotapes will be made in April of the 48 teachers who completed the field test course in November. This delayed post-tape will be made under conditions similar to those present during the pre-tape and immediate post-tape.

TABLE 1

Preliminary Results From Analysis of
Minicourse 1, Pre-tapes and Post-tapes

	Behavior Compared	Pre Tape Mean	Post Tape Mean	t	Sig. Level
1.	Percentage of discussion time taken by teacher talk.	51.64	27.75	8.95	.001
2.	Number of times teacher used redirection.	26.69	40.92	4.98	.001
3.	Number of times teacher used prompting.	4.10	7.17	3.28	.001
4.	Number of times teacher used further clarification.	4.17	6.73	3.01	.005
5.	Number of times teacher used refocusing.	.10	.02	.00	NS
6.	Number of times teacher repeated his/her own questions.	13.68	4.68	7.26	.001
7.	Number of times teacher repeated pupil answers.	30.68	4.36	11.47	.001
8.	Number of times teacher answered his/her own questions.	4.62	.72	6.88	.001
9.	Length of pupil responses in words (based on 5 minute samples of pre and post tapes)	5.63	11.78	5.91*	.001
10.	Number of 1-word pupil responses (based on 5 minute samples of pre and post tapes).	5.82	2.57	3.61*	.001
11.	Length of teacher's pause after question (based on 5 minute samples of pre and post tapes.)	1.93	2.32	1.90	.05
12.	Frequency of punitive teacher reactions to incorrect pupil answers	.12	.10	.00	NS
13.	Percentage of total questions that called for higher cognitive pupil responses.	37.30	52.00	2.94	.005

* Means would have been approximately 4 times larger if entire tapes had been analyzed, t-test would have been higher.

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FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

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August, 1968

In answer to your "Minicourse" inquiry...

Because of the broad interest in our Teacher Education Program, we have been forced to prepare this form memo to answer most of your questions about our "product." If, after reading this memo, you decide you would like to use Minicourse 1 in your inservice or preservice teacher education program, we will send you an application form. All future contacts would then be on a less impersonal basis.

The Far West Laboratory for Educational Research and Development is one of twenty regional laboratories established under the Elementary and Secondary Education Act of 1965. Our Laboratory began to function as an operational unit in the Fall of 1966, and our present Teacher Education Program was started in March of 1967. The emphasis of this Laboratory is on educational development. That is, the Laboratory identifies products needed in education and then, through a sequence of development and field testing, brings these products to a level where they are ready for operational use in the schools.

In the Teacher Education Program we are developing a series of "minicourses" for inservice and preservice training of teachers; these are built upon the microteaching concept and the use of the videotape recorder to develop specific teacher skills. Microteaching is the technique developed at Stanford University, in which the teacher plans a short lesson, usually five to ten minutes, and tries out this lesson with a small group of students, usually five to eight. This approach has the advantage of allowing the teacher to try out new ideas and develop new skills in a less demanding situation than the full classroom. By providing for videotape recordings of the microteaching lessons, the minicourse also gives teachers an opportunity to see their own teaching immediately after they have concluded the lesson and thus gain valuable insights that they can apply to improve the skills they are learning.

The Teacher Education Program has six minicourses in various stages of development. Minicourse 1 ("Effective Questioning in a Classroom Discussion") has been tested operationally in about 30 schools, and is now available for your use. This course requires about 75 minutes per day for 15 days. Designed for fourth-, fifth-, and sixth-grade teachers, it deals with specific behaviors that can improve the teacher's use of questions in a discussion lesson.

The course is made up of four instructional sequences, each of which deals with three specific behaviors and requires three days to complete. These sequences, plus the introductions, practice lesson, and end-of-course evaluation, make up the minicourse. In the first day of an instructional sequence, the teacher (or student teacher) who is taking the course views an instructional film. This film describes the three specific skills to be learned and shows examples of these skills in a classroom setting. The teacher then views a filmed classroom lesson which shows a model teacher conducting a discussion in which all three of the described skills are illustrated. The teacher is then asked to prepare a short discussion lesson based on her current class work and designed to apply the skills she has seen on the instructional and model films. On the second day of the instructional sequence, the first microteaching session is held. With five to eight of her own pupils the teacher conducts the lesson she has planned. This presentation is recorded on videotape. Pupils then return to the regular classroom and the teacher plays back the videotape in order to study her own behavior. Self-evaluation forms are provided so that on each replay of the videotape the teacher's attention is focused on a specific aspect of her behavior. Based on the self-evaluation of her videotape replays, the teacher replans the lesson and on the third day of the sequence reteaches the lesson with a different group of five to eight pupils from her class. This revised lesson is also recorded on videotape and the teacher again replays the lesson and evaluates her own performance.

The goal of the minicourse is <u>not</u> to train teachers to give the right answers on a multiple-choice test; its objective is to change the teacher's actual behavior in the classroom. Reshaping the teacher's behavior to include more effective questioning procedures and to eliminate undesirable practices is a very difficult task that necessitates practicing the learned skills over a period longer than the 15 days of the course. Thus, in order to bring about more permanent changes in the teacher's behavior, a follow-up program is provided along with Minicourse 1. Each month, the teacher receives a follow-up lesson which helps her review in her own classroom one or more of the skills she has learned in the course. Another part of the follow-up program is the Minicourse 1 Refresher Course. This course, given about six months after completion of Minicourse 1, requires 75 minutes per day for four days and includes two instructional films, two model films, and two microteaching lessons. Altogether, eight follow-up lessons plus the Refresher Course provide a nine-month follow-up program for teachers taking Minicourse 1.

You can readily see that the minicourse is somewhat different from most courses found in teacher education. We believe that the instructional model we are developing has several important advantages for both preservice and inservice programs.

Our field test of Minicourse 1 involved making videotapes of 48 teachers as they conducted discussion lessons before and after they completed the course. These tapes, made with the teacher's entire class, were analyzed to measure the changes brought about in the specific behaviors covered in the course.

Although space does not permit a detailed report of the results of our field testing, a brief summary will indicate the significance of our findings. Nine of the twelve behaviors taught in Minicourse 1 effected changes to a statistically significant degree. In fact, most of these changes were far larger than were required for statistical significance. For example, one of the teacher behaviors we attempted to develop was the skill to frame questions that required pupils to make longer responses. Before the teachers took the course, the average pupil response was 5.63 words. On the videotapes made after completing the course, the average pupil response was doubled to 11.78 words. One of the negative teacher behaviors that we sought to reduce in the course was the teacher's habit of repeating pupil answers. As you may know, many teachers habitually repeat pupil answers, thus slowing the tempo of the discussion and taking much class time away from pupil participation. For the 48 teachers involved in our field test, we found that the average teacher repeated pupil answers 30.68 times during a twenty-minute lesson. On the tapes made of these same teachers after completing the course, this behavior was reduced to 4.36 repetitions. One of our objectives in Minicourse 1 was to reduce the percentage of class discussion time taken by teacher talk. Several of the specific skills taught in the course were aimed at reducing teacher participation and increasing pupil participation during the discussion lesson. The course succeeded in reducing the percentage of teacher talk from 51.64% prior to the course to 27.75% after completion of the course. If you would be interested in receiving a more detailed research paper on our findings, I will be pleased to send you, upon request, a copy of my paper entitled "The Minicourse: Rationale and Uses in the Inservice Education of Teachers."

Minicourse 1, when shipped to you, includes all instructional and model lessons presented on a set of 16mm sound films. A complete set of these films is available on a loan basis for use in any preservice or inservice program which has the facilities to conduct the course as developed. All printed materials needed to conduct the course, including the teacher handbook, self-evaluation forms, follow-up program, and all instructions for the trainees and the course coordinator, will be provided free. The only charge to the school or college using Minicourse 1 is the cost of shipping the films and other materials to and from your schools, and a $25.00 fee for reprocessing the returned films. In order to use the course, however, a school must have certain equipment and facilities and make certain provisions for participating teachers. In addition to a portable videotape recording system for each four teachers taking the course concurrently, each participating school must also have a 16mm sound projector and screen available for use every third day during the course. Each teacher needs a fifteen-minute reusable videotape for the microteaching phase of the course. Teachers taking the course need 75 minutes of released time per day during regular school hours for the 15 days of the course. The school must also have a small room available in which to conduct the microteaching and to house the videotape recording equipment. Each participating school will require a person approximately one-fourth time to supervise and coordinate the course in that school. Schools using the course for inservice training are also urged to give their teachers the follow-up program, including the four-day Refresher Course.

If you would like to use this course in your school, please write to Mrs. Charlotte Bruns, Far West Laboratory for Educational Research and Development, 1 Garden Circle, Hotel Claremont, Berkeley, California 94705, and request an application form. At the present time only 17 sets of films are available. Thus, you should send your application well in advance of the dates on which you would like to conduct the course. Within the next few months we hope to make arrangements that will make Minicourse 1 more readily available.

Thank you for your interest in the Far West Laboratory for Educational Research and Development. We hope our products will be useful in helping you build a more effective teacher education program in your school.

Walter R. Borg
Program Director

WRB/ah

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FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
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Teacher Education Program

QUESTIONS AND ANSWERS ABOUT THE MINICOURSE MODEL

By Walter R. Borg

1. Why does the Far West Laboratory for Educational Research and Development call their inservice training courses, minicourses?

A. The term "minicourse" was coined to describe the unique model employed in our courses. This term indicates a short course designed to teach specific teacher behavior patterns built around the microteaching technique and the use of the videotape recorder. This term helps differentiate our courses from other inservice training courses that use other variations of videotape recorder feedback or microteaching.

2. Why does your course have teachers prepare and teach short lessons of around ten minutes when typical classroom lessons are much longer?

A. We want the teacher to practice the new skills she is learning in a simpler situation than that found in the regular classroom. Usually, since the teacher must only practice two or three skills in a given microteaching lesson, these skills can be incorporated into short lessons. In minicourses where the skills cannot be adequately practiced in short lessons, the teachers will be asked to prepare longer lessons.

3. Why do teachers in your course practice their lessons with only five or six pupils instead of an entire class?

A Again, because we want the teacher to learn the skill under a simpler set of circumstances than found in the regular classroom. However, our research to date as well as research carried out at Stanford University, indicates that once having mastered a skill, teachers can usually transfer from the microteaching situation to the regular classroom situation. In evaluating our courses, we measure the teacher's behavior before and after taking the course. These measures are made with the teacher's entire class and not in the microteaching situation. Our results show clearly that teachers who have learned a skill in the microteaching situation, can and do use this skill in their regular classrooms.

4. Since the minicourses are generally short, will teachers remember the skills learned for any length of time after completing the course?

A. On Minicourse 1 we made a videotape in the regular classes of 38 teachers five months after they had finished the course. We then compared this videotape with one we had made immediately after they had finished the course to see if they were still using the skills. The results were very encouraging. Of the 15 behaviors we scored, these teachers showed a lower level of performance on only one. They had gained significantly on three others and on the remainder had maintained the performance level they had reached right after completing the course. With conventional courses, the average person forgets a great deal over a period of 5 months. Why did teachers remember so well the skills learned in the Minicourse? We believe there are two reasons. The minicourse teaches useful skills rather than unusable facts. The teachers continued to apply these skills in their classrooms after the course was over.

5. Isn't the Minicourse really a one-shot approach to teacher training?

A. No, each minicourse is accompanied by materials that the teacher will use over a period of a year after completing the course. This follow up package will include a monthly activity for teachers to engage in that will help them review or improve their skills. Also included is a four-hour refresher course to be given four to six months after the completion of the regular course.

6. Couldn't the teachers get just as much out of the course by watching your films without going through the expense and time required to carry out the microteaching and reteaching parts of the course?

A. We are currently doing research to determine the relative importance of the parts of the Minicourse model. However, what we know of the psychology of learning would indicate that the microteaching and reteaching, in which the teacher actually tries out the skills under controlled conditions, are probably the most important parts of the course. Without these the course would be reduced to a series of instructional films. Instructional films convey information effectively, but have limited value in themselves as a device for helping teachers develop specific teaching behaviors.

7. Your instructional films are generally somewhat repetitious. Is this repetition necessary?

A. Our own experience with earlier forms of Minicourse 1, plus research evidence indicates that learning increases markedly if main points are repeated and presented to the learner in a variety of ways, such as through verbal description, visual presentation, presentation of examples, etc. Even with the amount of repetition built into the course, many teachers find it necessary to play our instructional films for a second time in order to get a better understanding of the content. Therefore, it appears that the repetition and variety of presentation embodied in the Minicourse model is necessary for effective learning.

8. Most inservice courses concerned with teaching skills involve the use of a supervisor to give the teachers advice on their teaching. Why doesn't the Minicourse model include a supervisor?

A. It is our desire to build minicourses that can be used for inservice training in any school where the necessary equipment is available. Since supervisory feedback is only useful if the supervisors are carefully trained in the specific behaviors taught, the use of supervisors in the minicourse would make the course less usable because it would be limited to districts where supervisory personnel were available and could be trained. In preservice programs using microteaching such as the Stanford Intern Program, supervisors are used. However, in this situation, the training is centralized on campus and the supervisors are thoroughly trained before working with the teacher interns. Research at Stanford, however, has indicated that the use of supervisors does not add significantly to the effectiveness of the microteaching approach over the use of model teachers alone. We are still studying the effects of supervisory feedback, however, and it is possible that some of our later courses will incorporate this feature.

9. What is the purpose of the model lesson?

A. The model lessons are designed to illustrate the behaviors described on the instructional tape within the context of a regular lesson. Another purpose of the model lesson is to help you develop a sensitivity for the behaviors being taught by requiring the trainee to watch for these behaviors in the model lesson and identify them when they occur. A considerable body of research indicates that use of models is an effective way to help individuals learn skills or behavior patterns.

The sound and picture quality of the Minicourse 1 films is far lower than found in the typical instructional film produced by commercial companies. Why aren't the Far West Laboratory films made in color and brought up to a higher quality standard?

A. The low picture quality of the Minicourse films is due for the most part to their having been made initially on videotape and then converted to 16mm film using the kinescope method. Kinescoping tends to reduce both picture and sound quality. The main reason that higher quality films are not developed is the expense involved. Producing the final version of the minicourse on color motion picture film would cost several times as much as our current production methods. Another reason for not developing higher quality films is that there is a large body of research that indicates that the photographic quality of instructional films and the use of color versus black and white has virtually no effect upon the amount that students learn from the film. The classic studies of May and Lumsdaine (1958)

establish this beyond any reasonable doubt. Since that time a number of other researchers have carried out similar studies which have agreed with the original findings. Even when extreme differences exist in the picture quality of two films that present essentially the same information, no significant differences can be found in the amount learned by students viewing the films.

Far West Laboratory for Educational Research and Development

THE 27 STEPS IN THE DEVELOPMENT PROGRAM

by Walter Borg and Paul Hood

Procedures

The procedures established to implement the program stategy for the Teacher Education Program are an outgrowth of the Laboratory-wide research and development strategy. At the present time, the Teacher Education Program has established 27 specific steps. The number of steps actually executed is, of course, dependent on the nature of the product being developed. They are as follows:

A. Research and Information Collecting

1. Review literature and prepare report.

B. Planning

2. State the specific objectives or behavioral changes to be achieved and plan a tentative course sequence.

C. Develop Preliminary Form of Product

3. Prepare scripts for the instructional lessons.
4. Prepare teacher handbook and evaluation forms for use in the microteach evaluation.
5. Prepare instructional tapes; record, edit and dub.
6. Prepare model tapes; record, edit, and dub.

D. Preliminary Field Testing

7. Conduct preliminary field test in 1 to 3 schools, using 4 to 12 teachers.
8. Evaluate results of field test.

E. Main Product Revision

9. Revise scripts based on preliminary field-test results.
10. Revise handbook and evaluation forms and print for main field test.
11. Revise instructional tapes; record, edit, and dub.
12. Revise model tapes; record, edit, and dub.
13. Prepare follow-up package to be used by teachers during nin months completion of the course.

F. Main Field Testing

14. Conduct field test using a sample of 30-75 teachers.
15. Collect pre-course tapes and post-course tapes of the classroom behavior of teachers participating.
16. Collect delayed post-course tapes of participating teachers from four to six months after completing the course.
17. Evaluate main field-test results to determine if the course meets the specific behavioral criteria established for the course.
18. Distribute the avaluate follow-up package.

G. Operational Product Revision

19. Revise course for operational field test.
20. Prepare complete implementation package including all material needed by a school to conduct the course without outside help.

H. Operational Field Testing

21. Train operational test coordinators.
22. Conduct operational field test.
23. Evaluate operational field-test results.

I. Final Product Revisions

24. Make final revisions in the minicourse prior to mass distribution of the course for operational inservice use in the schools.

J. Dissemination and Distribution

25. Disseminate and distribute course for use.

K. Report Preparation

26. Prepare and distribute research and development report, giving results of all field testing of the minicourse.

L. Implementation

27. Implement course in the schools.

THE THREE TESTS IN THE MINICOURSE DEVELOPMENT CYCLE

by Walter R. Borg

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June 1, 1968

The Main Field Test

The purpose of the main field test is to determine whether the course reaches its objectives, i.e., whether it brings about the levels of change in teacher and pupil behavior established by the course objectives and success criteria. The main field test will collect not only qualitative evidence such as that obtained in the preliminary field test, but will collect quantative evidence on the performance of teachers who take the course. In the main field test the minicourse will normally be administered to 30 or more teachers. In order to obtain quantative estimates of teacher performance, videotape recordings of the teacher's classroom behavior will be made shortly before the teacher starts the course and shortly after the course is completed. Analysis of behavioral changes on these videotape recordings will provide the principal evidence for determining whether the main field test form of the course meets the behavioral change objectives established for the course. It is anticipated that for Minicourse 1 and for at least some of the subsequent minicourses, a delayed post-course videotape will also be made of teacher performance three to six months after completion of the course. This tape will be analyzed and compared with the pre-course and post-course tapes in order to estimate the degree of permanence of behavior changes brought about by the course. Although the primary purpose of the main field test is to determine the degree to which the course meets its objectives, a secondary purpose is to collect information that can be used to improve the course in its next revision. Thus, questionnaire and interview data dealing with the course effectiveness will be obtained from participating teachers. Because of the importance of maintaining adequate controls during the main field test and of obtaining a maximum amount of information that can be

used to improve the course, it is anticipated that the main field test of the course will be coordinated in the schools by Laboratory personnel.

If the main field test data indicate that the course falls substantially short of its objectives, it would be necessary to revise the course and conduct another main field test. The field test and revision cycle would theoretically be continued at the main field test level until the course meets the minimum success criteria established for it. In practice it is likely that unless substantial progress were made in a second main field test, the course would be abandoned.

Operational Field Test

The purpose of the operational field test is to determine whether a mini-course is fully ready for operational use in the schools. In order to be fully ready for operational use, the course package must be complete and thoroughly tested in every respect. All materials needed to coordinate the course will normally be tried out during the preliminary and main field tests. However, since these field tests are conducted by Laboratory personnel, a satisfactory operational test of the total course package cannot be obtained in the preliminary and main field test. The operational field test will be set up and coordinated by regular school personnel. Interview and questionnaire data from both the coordinators and teachers taking the course will be collected. The main emphasis on these data will be on the completeness of the total course package. Interviewers will focus on parts of the course that fail to do their job or on materials that are needed in order to make the operation of the course easier or more effective. Pre-course and post-course videotapes will normally

not be obtained during the operational field test. After the operational field test is complete and the data have been analyzed, a final revision of the total course package will be carried out. This final revision will result in the operational form of the course. At this point, the normal field testing of the minicourse will be complete and the course will be distributed for schools for operational use. During operational use of the course, we will continue to supply course coordinators with evaluation questionnaires and interview forms so that we can maintain a running appraisal of the course effectiveness and identify new problems that arise in its operational use. This final step, however, is essentially a quality control procedure and would not be regarded as further field testing of the course.

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Teacher Education Program

M I N I C O U R S E S C H E D U L E

		Starting Dates INSERVICE	
		MFT	OFT
A.	Minicourse 2, Learning Skills That Encourage Language Acquisition in Deprived Kindergarten Children. Course Goal: To increase teacher skills that encourage the acquisition of language in deprived kindergarten children.	9/68	3/69
B.	Minicourse 3, Effective Questioning in a Classroom Discussion (Secondary). Course Goal: To increase the effectiveness of the questioning techniques of secondary school teachers and the quantity and quality of student participation (grades 7-12) in class discussion situations.	2/69	9/69
C.	Minicourse 4, Verbal Interaction. Course Goal: There are two major objectives: (a) to train teachers to categorize their own classroom verbal behavior using Flanders' system and (b) to increase frequency in classroom discussions of teacher verbal behavior in Categories 2, 3, and 4; and decrease frequency of Category 5 behavior.	3/69	
D.	Minicourse 5, Error Analysis Tutoring in Individualized Mathematics Program. Course Goal: To increase the effectiveness of teacher tutoring behavior designed to encourage the student systematically to identify, explain, and correct the errors on his mathematics worksheets or tests.	2/69	11/69
E.	Minicourse 6, Refresher Course for Effective Questioning in a Classroom Discussion. Course Goal: In cases where a loss has occurred in teacher and pupil behavior on the skills learned in Minicourse 1, to bring these skills back to the level displayed immediately after completing Minicourse 1.	Comp.	1/69

MFT = Main Field Testing; OFT = Operational Field Testing

		MFT	OFT
F.	Minicourse 7, Teachers' Use of Contingency Management to Structure Pupil Behavior. Course Goal: To train teachers to employ the process of contingency management to develop desirable pupil behavior patterns and extinguish undesirable pupil behavior patterns.	4/69	10/69
G.	Minicourse 8, Organizing the Kindergarten for Small-Group Instruction. Course Goal: To provide kindergarten teachers with a set of skills (organizational procedures) that will make it possible for them to instruct, uninterrupted, a group of 5 children for 10 minutes while the remaining 20 or more children work independently.	11/68	9/69
H.	Minicourse 9, Bloom's Cognitive Taxonomy Applied to Classroom Discussions (Secondary). Course Goal: To increase teacher effectiveness (grades 7-12) in asking questions which require the use of complex thinking skills.	3/69	
I.	Minicourse 10, Changing Teacher Behavior Toward Minority Group Pupils. Course Goal: To reduce significantly the frequency of six or more specific types of teacher behavior patterns that are perceived by minority group students to reflect teacher prejudice.	10/69	
J.	Minicourse 11, Peer Tutoring in the Intermediate Grades. Course Goal: To train intermediate-grade pupils in a series of specific strategies to be employed in peer tutoring.	9/69	
K.	Minicourse 12, Teacher Behavior That Stimulates Pupils to Increase Their Observation Skills. Course Goal: To train teachers in behavior that increases pupil observation skills and subsequently brings about such increases.	Dates of testing not established	
L.	Minicourse 13, Teacher Strategies That Increase Pupil Interaction. Course Goal: To increase teacher effectiveness in using specific interaction strategies and to increase interaction among pupils in a discussion situation.	"	"

		MFT	OFT
M.	Minicourse 14, Improving Teacher and Pupil Skills in Discussing Controversial Issues. Course Goal: To develop teacher and pupil skills in discussion and critical appraisal of controversial social issues.	"	"
N.	Minicourse 15, Introduction to the Teaching of Inquiry Skills. Course Goal: To develop a variety of teacher behavior patterns designed to help pupils employ the essential skills of the inquiry approach.	"	"
O.	Minicourse 16, Teacher Behavior That Stimulates Pupil to Learn and Use Inquiry Procedures. Course Goal: To build a broader repertory of teacher skills upon the foundation developed in Minicourse 15.	"	"